

AMENDMENTS

IN THE CLAIMS

Please amend the claims as follows:

8. (Amended) A method of decoding an array composition comprising
- a) providing an array composition comprising:
- i) a substrate with a patterned surface comprising discrete sites; and
 - ii) a population of microspheres comprising at least a first and a second subpopulation, wherein each subpopulation comprises a bioactive agent; wherein said population of microspheres is randomly distributed on said surface such that any discrete site has at most a single associated microsphere;
- b) adding a plurality of decoding binding ligands to said array composition to identify the location of at least a plurality of the bioactive agents.
13. (Amended) A method of determining the presence of a target analyte in a sample comprising:
- a) contacting said sample with a composition comprising:
- i) a substrate with a patterned surface comprising discrete sites; and
 - ii) a population of microspheres comprising at least a first and a second subpopulation each comprising a bioactive agent and not comprising an optical signature; wherein said population of microspheres is randomly distributed on said surface such that any discrete site has at most a single associated microsphere; and
- b) determining the presence or absence of said target analyte.
14. (Amended) A method of determining the presence of a target analyte in a sample comprising:
- a) contacting said sample with a composition comprising:

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15. i) a substrate with a surface comprising discrete sites; and
ii) a population of microspheres comprising at least a first and a second subpopulation each comprising:
1) a bioactive agent; and
2) an identifier binding ligand that will bind a decoder binding ligand such that the identification of the bioactive agent can be elucidated;
wherein said population of microspheres is randomly distributed on said surface such that any discrete site has at most a single associated microsphere; and
b) determining the presence or absence of said target analyte.

16. (Amended) A method of making a microsphere array comprising:
a) contacting a substrate with a surface comprising discrete sites with a solution comprising a population of particles; and
b) applying energy to said substrate or said solution, or both, such that at least a subpopulation of said particles randomly associates onto sites.

20. (Amended) A method according to claim 16, wherein said substrate is a fiber optic bundle.

Please add the following claim:

35. A method according to claim 8, wherein said bioactive agents are nucleic acids.

REMARKS

Claims 8-14 and 16-35 remain in this application. Claims 8, 13, 14, 16 and 20 have been amended. Support for the amendments of claims 8, 13 and 14 is found on p. 8, line 21 of the specification. Support for the amendment of claim 16 is found on p. 5, line 30 of the specification. Claim 35 is added. Support for claim 35 is found on p. 12, line 20 of the specification.